JAPANESE MEDICAL MATERIAL

T-243

TOTUMITT

(Calcium Oxymethyl-Alphamide)

Medical No. 225

21 May 1946

MEDICAL ANALYSIS SECTION

5250th Technical Intelligence Company
APO 500

Reproduced by U S Army Technical Intelligence Center, Tokyo

21 May 1946

TOTUMITT

(Calcium Oxymethyl-Alphamide)

SOURCE: Tokyo, Japan

IMPORTANCE: Not previously reported. An insoluble calcium organic synthetic employed as an antacid and adsorbent. No identical product is listed in standard American references.

DESCRIPTION: Two hundred and fifty grams of a fine white powder, contained in a white paper bag, are packaged in a cardboard box.

SUMMARY OF GENERAL INFORMATION:

Totumitt is claimed to be calcium oxymethyl-alphamide, a synthetic product with the formula, $Ca(CO.NH_2.NH.CH_2OH)_2$. It is available only as a powder which is slightly alkaline and therefore antacid.

The chief virtue of this synthetic appears to be in the fact that it is active as an adsorbent in either acid or alkaline media, conditions which are paralleled in the digestive tract. In the slightly acid gastric juice it colloidalizes and forms a hydrogel; in the alkaline intestinal juice, a colloidal organic

compound of calcium is precipitated.

A translation of the literature enclosed with the product is part of this report and includes its chemistry, pharmacological action, indications, routes of administration, identification, dosage, prescription use and manufacturer.

PHOTOGRAPHS:

Figure 1 - Closed package of Totumitt

Figure 2 - Open package of Totumitt

Figure 3 - Totumitt literature

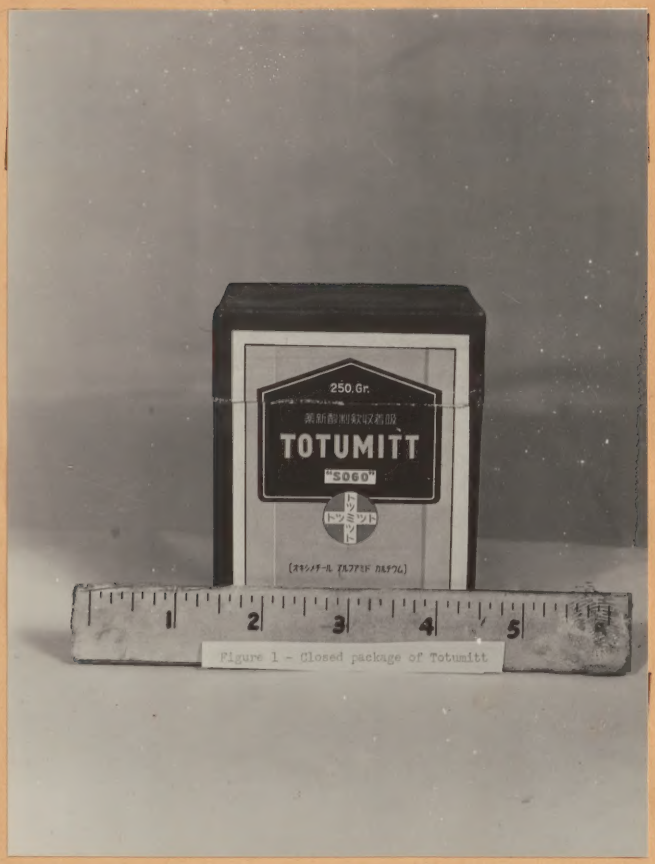

Figure 1 - Closed package of Totumitt

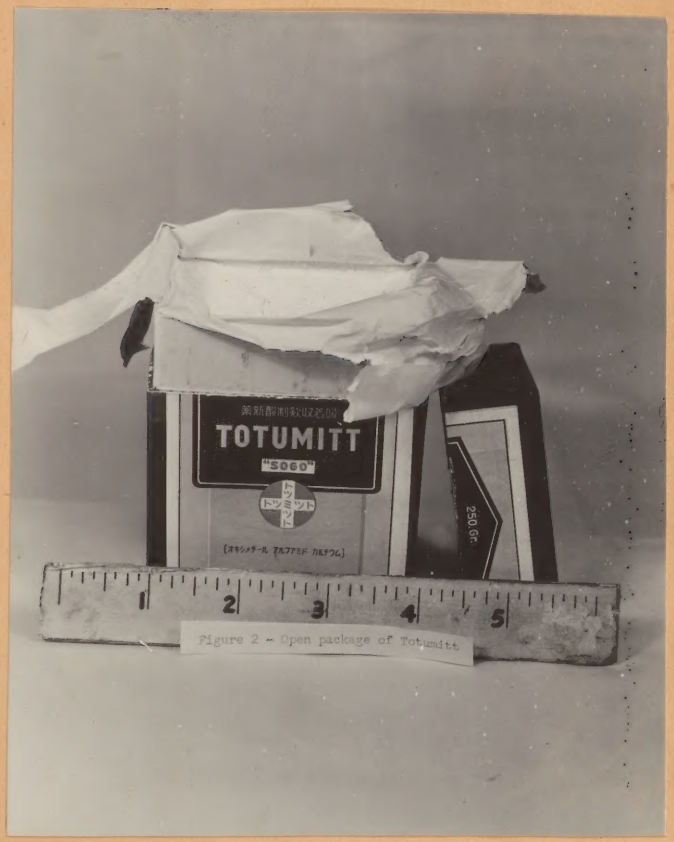

Figure 2 - Open package of Totumitt

醫學博士　林　文先生實驗推奬

吸着收歛殺菌制酸新薬

製造特許　**トツミツト**「ソーゴ」 TOTUMITT "SOGO"

本劑は"Kalkstickstoff"より誘導せる中間体（鹽基性セミ、カーバマイド化合物）にメチール基の結合したる成蹟体にして其集成はメチール、アミドのカルチウム塩〔$Ca(CO.NH_2, NH.CH_2OH)_2$〕に屬し特許方法に由り製造したる新合成体なり。

化學的性質

トツミツトは無味無臭白亞様の粉末で、淡濕性なき耐久性のものである。本劑を灼熱すれば焼肴時の臭氣を發しつゝ炭化し遂に白色の石灰殘渣を殘す。又本劑は水に難溶性にして其水溶液は「微アルカリー」反應を呈す。胃液中の塩酸の如き稀薄塩酸（〇、二……〇、三％）には全く溶解せず分子は膨大し膠質狀に懸垂す。過剩の塩酸に溶解すれ共之れを「アルカリー」にて中和すれば再び膠質狀の沈澱を再成するものである。即ちこれを生理的作用として考察すれば、服用後胃液に由りて一部膠質を形成し更に腸に至りて腸液の爲めに再び膠質狀を呈せるカルチウムの有機化合物の沈澱を析出して何れも强力なる吸着殺菌制酸作用を發現するものである。尙ほ前記の膠質作用と同時に分解に由りて活性「メチール」化合物を分離して强力なる防腐殺菌作用を呈するものである。

藥物的作用

トツミツトの吸着收歛劑としての効力及び其の防腐殺菌力は在來使用せられて居るもの例へば炭末、白陶土（アドソール）又は銀炭末化合品（アルシリン、サリピス）（ビスミツト）等に比し其の作用及び効果を異大にするものである本劑トツミツトは化學的作用と物理的作用の兩作用を同時に發揮するもので從來の吸着劑の研究史上に一新機軸を齎らしたものと云ふも過言でない。

即ち從來の炭末又は白陶土の有つ吸着現象は全く機械的作用に屬し單に粒子の表面に於て凝結又は吸着が行はるもので全く一方的作用にのみ限られてゐる、從つてその吸着力は或る一定の平衡狀態に達したる時はその後吸着力が失はるゝか或は非常に弱められてしまふのである。即ち胃より腸に行くに從ひ吸着力は加速度に減殺せらるゝのである。例へば炭末の吸着力は炭末使用の量の多きもの程大で即ち使用量を增加せしめねばならぬ欠点があるのである。

動物試驗

家兎に對し經口的投與試驗を行ひたるに次表の如く健全なる發育を遂げ副作用なきことを示したのである。

試驗表

投與期	第一日	第二日	第三日	第四日	第五日	第六日	第七日	平均
投與量	0.60G	3.0G	4.0G	4.0G	5.0G	3.0G	5.0G	3.50G
体重	1688G	—	—	—	—	—	2382G	102G

尙ほ醫學博士林文先生は京都帝大醫科研究室に於てトツミツトの十瓦又は二十瓦を「カテーテル」を用ひて直接に家兎の胃の中へ挿入せられた實驗によれば少しも副作用無くトツミツトは服用上毫も懸念なしとの實證を與へて居られるのである。

試驗方法

トツミツトの組成分たる「アルデヒード」の檢出を以てトツミツト存在の有無を實證せり

一、A液を加熱蒸溜しその溜出せる蒸氣の冷却液に「フロログリシン」の苛性「ナトロン」溶液を加へたるに顯著なる「アルデヒード」の存在を認め以て本劑トツミツトは吸收せられ後尿中へ排泄せられしことを認む。

トツミツトとヂスターゼ類

日本薬局方澱粉を同方所定の方法に從ひ消化試驗を行ふにあたりトツミツト〇、五添加し置きたるに何等異狀を認めず即ち消化劑の作用に有害作用を及ぼさゞるものなり。

適應症

急性慢性の下痢、消化不良、小兒下痢、胃酸過多症、胃腸加答兒、蛋白腐敗、異狀醱酵、グル音鼓腸、胃腸疾患より來れる潰瘍及腸出血、赤痢、チブス性下痢、中毒に依る皮膚濕疹及搔痒症外用として「デルマトール」「沃度ホルム」の代用とすることを得。

用法及用量

大人　一日三回　一回量　〇、五—一、〇
小兒　一日三回　一回量　〇、二—〇、五
食後又は食前一—二時間に分服す

處方例

急性腸加答兒		アミーバ性下痢		小兒下痢	
トツミツト	一、五	トツミツト	二、〇	トツミツト	〇、六
重炭酸ソーダ	二、〇	重炭酸ソーダ	二、〇	乳糖	〇、五
ケンチアナ末	〇、五	ケンチアナ末	〇、五	ヂアスターゼ	〇、三
		ヂアスターゼ	〇、六		
右一日三回分服		右一日三回分服		右一日三回分服	

胃酸過多症にはトツミツト〇、五—一、〇にて最効あり

（トツミツトの特徴）
一、胃腸及び腎臟障害を起す事なく又嘔吐或は不快の感を呈することゝ等の副作用絶對になし。
二、白色の粉末にして無味無臭、吸濕性なき爲め處方上に最も有利とする處なり。

包裝

粉末　二五瓦入　一〇〇瓦入　二五〇瓦入　五〇〇瓦入　一〇〇〇

名古屋市東區大津町三丁目

發賣元　**相互藥品試驗所**　電話東④三二〇五番・三二〇六番　振替口座名古屋九九三七番

東京支店　東京市四谷區右京町十六番地　電話四谷(35)六九一八番　振替東京九〇九九九番

新潟支店　新潟市寄居町七〇八番地　電話九二六番　振替東京一五〇九六〇番

Figure 3 - Totumitt Literature

JES A3¼

Translation of the Accompanying Literature

TOTUMITT "SOGO"

Experimentally recommended by Dr. Hayashi
New medicament for adsorption, astringency,
antisepsis and antacid action.

This drug is a derivative (a semibasic carmide compound) of "crude calcium cyanamide" to which a methyl base has been added. It is a calcium salt, $Ca(CO,NH_2NH.CH_2OH)_2$ of a methylamine, and is a new drug manufactured under a patented process.

PROPERTIES: Totumitt is a tasteless, odourless, chalky powder. It does not absorb any moisture and it can be stored for a long time. At high temperature, this drug is carbonized and emits a fishy odor, leaving a white residue of lime. This drug is slightly soluble in water and its solution has a weak alkaline reaction. It does not dissolve in the diluted hydrochloric acid (0.2 to 0.3%) of the stomach but swells and becomes gelatinous. When the drug is dissolved in excess hydorchloric acid and is then neutralized by alkali a colloidial precipitate is again produced.

Contact with the gastric juice causes the formation of a colloid; in the alkaline intestinal juice, an organic colloidial compound of calcium is precipitated, thereby resulting in absorption sterilization, and anti-acid action. At the same time that the above mentioned colloidial action occurs, it dissolves and liberates a methyl derivative which produces powerful antisepsis and bactericidal action.

PHARMACOLOGICAL ACTION: Adsorbtive astringent, disinfectant and sterilizing effects differ in effectiveness in many drugs, e.g. - carbon powder, white clay (Adsor), compound of silver and carbon powder (Arsulin, Salikir, Bismitt), etc. Because of its concurrent chemical and physical action, totumitt is an epochal advance in the research history of adsorbtive drugs. The adsorbative phenomena of carbon powder and white clay result from mechanical

INDICATIONS: Acute or chronic diarrhoeia, dyspepsia, child diarrhoeia, gastric hyperacidity, gastritis, enteritis, albumen putrefaction, abnormal fermentation, flatulence, ulcers and intestinal hemorrhage caused by diseases of the stomach and intestines, dysentery, typhus diarrhoeia. Externally in skin eczema and pruritus caused by poisoning as a substitute for fermatol and iodoform.

USE AND DOSAGE:

Adults - 0.5 to 1.0 gm. three times a day

Children - 0.2 to 0.5 gm. three times a day

Administer before or after meals.

PRESCRIPTION USE:

For acute intestinal catarrh:

TOTUMITT 1.5
Bicarbonate of soda 2.0
Gentian powder 0.5
Administer t.i.d.

For amoebic dysentery:

TOTUMITT 2.0
Bicarbonate of soda 2.0
Gentian powder 0.5
Diastase 0.6
Administer t.i.d.

For child diarrhoeia:

TOTUMITT 0.6
Sugar of milk 0.5
Diastase 0.3
Administer t.i.d.
For gastric hyperacidity, 0.5-1.0 gm of Totumuitt is most effective.

ADVANTAGES OF TOTUMITT:

1. It does not cause any injury to the stomach, the intestines and kidneys. It does not cause any untoward effects such as vomiting, unpleasantness, etc.

2. It is a white tasteless, odorless,

action, and because coagulation or adsorption only occurs at the surfaces their action is one-sided. When adsorption reaches a certain balanced state, the effect is lost or lessened; in other words, the adsorbtive effect is markedly reduced during movement from the stomach to the intestines. For example, the more carbon powder is used, the more pronounced is the effect and the quantity employed is consequently increased. This is a disadvantage of these kinds of drugs.

ANIMAL EXPERIMENTS: Oral feeding tests conducted on rabbits resulted in sound growth as shown in the following chart and there were no secondary reactions.

Test Chart

Period	1st day	2nd day	3rd day	4th day	5th day	6th day	7th day	Average
Dosage	0.6gm	3 gm	4 gm	4 gm	5 gm	3 gm	5 gm	3.5 gm
Body Weight	1688 gm	-	-	-	-	-	2382 gm	102 gm

According to the tests conducted by Fumi Hayashi, M.D. at the Medical Research Dept. of the Kyoto Imperial University whereby 10 to 20 gm of Totumitt were administered into the stomach of rabbits by catheter, there were no secondary reactions, which proves that there need be no fear in the administration of this drug.

IDENTIFICATION: The presence of Totumitt can be proved by testing for aldehydes which are liberated by Totumitt.

1 - Distill a solution and to the condensate add a caustic soda solution of phloroglucinol which will clearly show the presence of aldehydes. After Totumitt is absorbed it is excreted in the urine.

TOTUMITT AND DIASTASE: We employed 0.5 gm of Totumitt in a starch-digestion test conducted according to the Pharmacopoeia Japonica method. No abnormality was noted in the result and this means that Totumitt does not cause any undesirable effect on digestion.

powder, which does not absorbs moisture and is therefore very convenient for prescription use.

PACKAGING:

Powder 25 gm - 100 gm - 500 gm - 1000 gm

SOLD BY:

Mutual Pharmacentical Testing Laboratory
3-Chome Ostu-Machi, Higashi-Ku, Nagoya
Telephone - Higashi (4) 3205 & 3206
Postal Transfer Account - Nagoya 9937

TOKYO BRANCH

16 - Uhyo-Machi, Yotsuya-Ku, Tokyo
Telephone - Yotsuya (35) 6918
Postal Transfer Account - Tokyo 90999

NIIGATA BRANCH

708 Yorii-Machi, Niigata
Telephone - 926
Postal Transfer Account - Tokyo 15096